

# PATENT SPECIFICATION

278,142



Application Date: Aug. 16, 1926. No. 20,148/26.

Complete Left: May 14, 1927.

Complete Accepted: Oct. 6, 1927.

## PROVISIONAL SPECIFICATION.

### Improvements in Golf Clubs.

We, WILLIAM JAMES HADDEN, of 125, Forth Street, Pollokshields, Glasgow, British nationality, and DONALDSON MANUFACTURING COMPANY LIMITED, 1A, Blythswood Square, Glasgow, a British company, do hereby declare the nature of this invention to be as follows:—

This invention relates to golf clubs.

At present, the usual system of manufacturing golf clubs with iron heads, is for the maker to prepare a shaft, usually of hickory wood, then to select a suitable head (the heads being forged and made elsewhere) and fit the head on to the shaft and secure it thereon permanently by a rivet whereafter he provides the shaft with a grip consisting of a strip of fabric wound spirally round the shaft and secured in place by an adhesive and covers this strip with a spirally wound strip of leather or prepared cloth and binds it in position. In the case of clubs with wooden heads the latter are made elsewhere and a head is secured to a shaft by splicing or insertion and by glueing and whipping at the neck. Finally the clubs are finished off and varnished.

In both cases under this system the clubs are completely finished, one at a time, for which skilled labour is required, and the manufacturer, as well as the dealer, has to keep a large stock of finished clubs of the various kinds, viz.: drivers, brassies, irons, cleeks, putters, etc.

This system is very costly for the manufacturer as well as the dealer in golf clubs as they must each keep in stock a complete range of each kind of club so as to suit the requirements as to length, weight, shape, lie, and grip, of all customers. Further, for shipping

orders, completed clubs are usually supplied. 45

The object of the present invention is to overcome these drawbacks by making the clubs on an entirely new system.

According to this invention the golf clubs are manufactured on what may be termed an "assembly system" according to which shafts, heads and grips are made separately and are so made and adapted that they can be readily put together at any time to suit the desire of the dealer or the user. Under this system only a few completely finished clubs need be kept in stock, say, one or more as samples of each kind of club. There would be a range of heads for drivers, for brassies, for irons, etc., likewise a range of shafts for each character of club and also a range of grips varying in thickness suitable for the user and these would be finished and complete in themselves and made so that they could be readily fitted together by unskilled labour to form the complete club. 60 65

Instead of the usual hickory shafts we prefer to use hollow steel shafts and the heads and grips are fitted to such shafts by a screwing and clamping method. The present system of glueing and whipping is dispensed with. 70

The heads are made by machinery or otherwise to certain standard patterns, the shafts are made to certain standard lengths and the grips are made to certain standard thicknesses. At the factory, sets of each pattern of head, shaft, and grip would be kept and would always be available ready for assembly. 75 80

The workman would take a tubular steel shaft of suitable length, then a finished head of suitable shape, weight, and lie, and affix it to the shaft and then a suitable complete grip and mount and 85

adjust it on the shaft selected, so that a completely finished club would be formed, built up specifically to suit the user, who, if at hand, can test the club thus formed and, if necessary, change one or more of its component parts for another part or other parts.

In the case of iron heads for the purpose of securing them to the steel shafts the end of the socket of each head may be reduced in thickness and be tempered and slotted longitudinally, its interior surface being screw threaded. The end of each shaft would be correspondingly screw threaded externally so that the head selected could be readily attached to the shaft selected by screwing the shaft into the socket. An internally tapered collar or ferrule, internally screw threaded, would be tightened over the slotted end of the socket to cause it to firmly grip the shaft and clamp the head thereto. In cases where it is not convenient to temper the socket of the head, the socket may have tightly fitted therein a tubular part, suitably split, for the reception of the steel shaft. A clamping ferrule would be fitted on the tube.

In the case of wooden heads, a short length of tubing or a hollow collar may be provided on the neck to form the socket for the reception of the steel shaft. The collar or tube would be suitably screwed internally and a clamping ferrule would also be preferably provided.

For ordinary clubs, i.e. for clubs for right handed players, the screw threads on the shaft and in the socket are left handed so that at every stroke there is a tendency to tighten up the screw engagement. Right hand screw threads are desirable for left handed players.

The grip for completing the club comprises a hollow metal sleeve, covered with leather or other material, the said sleeve being capable of slidably fitting on the end of the club shaft. At its upper end the sleeve is provided with screw means for attaching it securely to the shaft in such manner as to give a screw adjustment while preventing longitudinal movement after adjustment, and, at its lower end, it is split and is provided with ferrule and screw clamping means for tightening and holding it on the shaft, and further, it is provided with means which, while permitting the sleeve to be slid longitudinally on the shaft, prevents it turning angularly thereon.

Preferably, the grip consists of a steel sleeve which is made a sliding fit on the end of the steel shaft and has the usual leather or fabric strip for the hands wound upon it and secured in the customary way. At the end to be located

nearer the head, the sleeve is split by two or more longitudinal slits and, when in position on the shaft, a ferrule or collar having a conical internal portion is slipped over the slits and screwed up on a left hand thread on the sleeve, thus reducing the circumference of the sleeve and clamping it tightly to the shaft. If desired there may be an additional short sleeve which is clamped to the shaft and the main sleeve may be fitted thereon or thereover and clamped in its turn, a double clamping being thus obtained.

The end of the shaft is closed by a plug having an axial screw threaded hole in it. The upper end of the sleeve is also closed by a plug or cover with central hole. When the grip has been fitted on the shaft a long screw preferably with a milled head is passed through the centre of the plug in the sleeve into the hole in the plug of the shaft so as to hold the grip truly in position.

It is obvious that by turning the screw the sleeve can be nicely adjusted in position and, after being clamped, the screw can be tightened positively to prevent any longitudinal movement of the sleeve on the shaft.

To prevent positively any turning of the grip on the shaft, the shaft is provided with one or more longitudinal external grooves or channels and the sleeve has corresponding internal ribs or projections so that when sliding the grip on to the shaft the rib or ribs is or are engaged with the groove or grooves. Alternatively the rib or ribs may be on the shaft and the groove or grooves in the sleeve.

The simplest way may be to make longitudinal depressions or channels externally on both the sleeve and the shaft, the external longitudinal depressions in the thin sleeve forming internal ribs adapted to engage and slide in the channels of the shaft.

The grip, when fitted, is secured to the shaft at both its ends in a way which allows it to be readily loosened if not exactly suited to the desire of the player and moved along the shaft within limits or replaced by a different and more suitable grip similarly attached to the shaft, so that the trouble of loosening the binding strip, altering the length of the shaft by cutting it and replacing the binding is obviated.

It will be appreciated that the foregoing system of manufacturing golf clubs is a great improvement over the existing system. A model exactly as desired by each player can be readily built up from standardised parts. Waste

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material is reduced to a minimum and manufacturing costs are much reduced. Then again there is a considerable saving in packing and transport as a number of shafts can be packed together into small bulk and likewise a number of grips and a number of heads.

Dated this 14th day of August, 1926.

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## COMPLETE SPECIFICATION.

### Improvements in Golf Clubs.

We, WILLIAM JAMES HADDEN, of 125, Forth Street, Pollokshields, Glasgow, British nationality, and DONALDSON MANUFACTURING COMPANY LIMITED, 1A, Blythswood Square, Glasgow, a British company, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to golf clubs and refers to that class of such in which the parts, namely, the shaft (preferably of hollow steel), the head and the grip are secured together mechanically by means involving a clamping action.

The object of this invention is to provide an improved and practical construction of such golf clubs, in which all the parts can be so secured together that, while they possess the advantages of such clubs in being capable of having the complete parts made and stored separately and so made and adapted as to be readily put together at any time to suit the desire of the dealer, they will not be relatively movable in use, and in which the golf club will simulate a golf club of the usual form having a hickory shaft, a wooden or iron head and a wrapped grip.

According to this invention, the golf club comprises, in combination, a hollow steel shaft, a hollow and tubular grip, means for clamping the grip in position on one end of the shaft, a head with socket adapted to fit on the other end of said shaft and circumferentially contractible means for clamping the socket on the shaft.

The head may be made with a contractible socket adapted to fit snugly on the end of the shaft and have means, such as a screwed plug, for detachably securing it to the shaft, and means for contracting said socket so as to clamp it on said shaft.

The heads are made by machinery or otherwise to certain standard patterns, the shafts are made to certain standard lengths and the grips are made to cer-

tain standard thicknesses. At the factory, sets of each pattern of head, shaft, and grip would be kept and would always be available ready for assembly.

The dealer or user would take a tubular steel shaft of suitable length, then a finished head of suitable shape, weight, and lie, and affix it to the shaft and then a suitable complete grip and mount and adjust it on the shaft selected, so that a completely finished club would be formed, built up specifically to suit the user, who, if at hand, can test the club thus formed and, if necessary, change one or more of its component parts for another part or other parts.

In order that the invention may be clearly understood and readily carried into practice, a particular embodiment of a golf club will now be described, simply by way of example, reference being had to the accompanying drawings, wherein:—

Fig. 1 is a longitudinal sectional view of a golf club with an iron head.

Fig. 2 is a sectional view on line II—II in Fig. 1.

Fig. 3 is an enlarged sectional view on line III—III in Fig. 1.

Fig. 4 is an enlarged sectional view on line IV—IV in Fig. 1.

In the assembled club shown in the drawing the iron head is marked 1, the hollow steel shaft 2 and the grip 3.

The iron head is secured to the steel shaft by making the end of the socket 4 of the head of reduced thickness, this end being tempered and slotted longitudinally at 5 and having its exterior surface provided with a tapered thread 6. Moreover the head is internally threaded at 7. The lower end of the shaft is arranged to fit snugly into the socket which is tapered to correspond to the shaft and this end is provided with a plug 10 secured to the shaft for instance by rivets 11 said plug having a tapped extension 12 adapted to screw into the threaded part 7 so that the head selected could be readily attached to the shaft selected by screwing the shaft into the

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socket, the extension 12 acting to draw the shaft so as to cause it to fit snugly in the socket. An internally threaded ferrule 13 is then tightened over the slotted end of the socket to cause it to grip firmly the shaft and clamp the head thereto. Alternatively the internal thread of the ferrule may be tapered instead of the thread 6. The ferrule has a curved upper end 14 which fits with clearance around the shaft and the external surface of the ferrule is knurled.

In cases where it is not convenient to temper the socket of the head, the socket may have tightly fitted therein a tubular part, suitably split, for the reception of the steel shaft. A clamping ferrule would then be fitted on the tube.

In the case of wooden heads, a short length of tubing or a hollow collar may be provided on the neck to form the socket for the reception of the steel shaft. The collar or tube would be screwed internally and a clamping ferrule provided as for iron heads.

For ordinary clubs, i.e. for clubs for right handed players, the screw threads on the shaft and in the socket are left handed so that at every stroke there is a tendency to tighten up the screw engagement. Right hand screw threads are desirable for left handed players.

The grip for completing the club comprises a hollow metal sleeve 20, covered with leather 21 or other material, the said sleeve being capable of slidable fitting on the end of the club shaft. Preferably a wedge-shape piece 30 is provided between the sleeve 20 and the covering 21 to form a bulge at the upper end of the club.

The usual leather or fabric strip 21 for the hands is wound upon the grip and secured in the customary way. At the end to be located nearer the head, the sleeve is split by four longitudinal slits 22 and, when in position on the shaft, a ferrule 23 having a conical internally screw threaded portion is slipped over the slits and screwed up on a left hand thread on the sleeve, thus reducing the circumference of the sleeve and clamping it tightly to the shaft. Alternatively the thread on the sleeve may be tapered instead of the ferrule. If desired, there may be an additional short sleeve (not shown) which is clamped to the shaft and the main sleeve may be fitted thereon or thereover and clamped in its turn, a double clamping being thus obtained.

The end of the shaft is closed by a plug 24 adapted to be fixed in the shaft by the grub screw 31 having an axial screw threaded hole 25 in it. The upper end of the sleeve is also closed by a

milled head 26 on a long screw 27 which screws into the plug of the shaft so as to hold the grip truly in position.

It is obvious that by turning the milled head 26 of the screw 27 the sleeve can be nicely adjusted in position and, after being clamped, the screw can be tightened positively to prevent any longitudinal movement of the sleeve on the shaft.

To prevent positively any turning of the grip on the shaft, the shaft is provided with one or more longitudinal external grooves or channels as 28 and the sleeve has corresponding internal ribs or projections 29 so that when sliding the grip on to the shaft the rib or ribs is or are engaged with the groove or grooves. Alternatively the rib or ribs may be on the shaft and the groove or grooves in the sleeve. The simplest way is as shown to make the longitudinal depressions or channels externally on both the sleeve and the shaft, the external longitudinal depressions in the thin sleeve forming internal ribs adapted to engage and slide in the channels of the shaft.

The grip described herein forms the subject of the invention described in the concurrent Application No. 20,147/26 (277,473), and, when fitted, is secured to the shaft at both its ends in a way which allows it to be readily loosened if not exactly suited to the desire of the player, and moved along the shaft within limits, or replaced by a different and more suitable grip which can be similarly attached to the shaft, so that the trouble of loosening the binding strip, altering the length of the shaft by cutting it and replacing the binding, is obviated.

It will be appreciated that the foregoing manner of manufacturing golf clubs is a great improvement over the existing manner. A model exactly as desired by each player can be readily built up from standardised parts. Then again there is a considerable saving in packing and transport as a number of shafts can be packed together into small bulk and likewise a number of grips and a number of heads.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A golf club of the class specified comprising, in combination, a hollow steel shaft, a hollow and tubular grip, means for clamping the grip in position on one end of the shaft, a head with socket adapted to fit on the other end of said shaft and circumferentially con-

tractible means for clamping the socket on the shaft.

2. A golf club according to Claim 1 wherein the grip and the head are screw clamped to the shaft.

3. A golf club comprising, a shaft, a club head having a contractible socket adapted to fit snugly on the end of said shaft, means for detachably securing said shaft to said socket, means for contracting said socket so as to clamp it on said shaft, and a grip detachably fixed on the other end of said shaft.

4. A golf club according to Claim 3 having a screwed plug on said shaft adapted to screw into the said head for detachably securing the shaft to the socket.

5. A golf club according to Claim 4 wherein the socket is provided with an end of reduced thickness, which is slotted longitudinally so that it is contractible and an internally threaded ferrule adapted to screw on to the end of said socket, said reduced end or said ferrule being tapered to contract the reduced end and thereby clamp the head to the shaft.

6. A golf club comprising, a shaft, a club head having a contractible socket adapted to fit snugly on one end of said shaft, a screwed plug on said shaft adapted to screw into said head, means for contracting said socket to clamp it on the shaft, a sleeve forming a grip slidably fitting on the other end of said shaft having the end nearer the head split and externally screw threaded, a ferrule having a conical internally screw threaded portion adapted to screw on to the split end of the sleeve to clamp it on the shaft, a tapped plug fixed in the end of said shaft, and a screw adapted to screw into said plug and having a head engaging with the upper end of said sleeve so as to hold the grip truly in position.

7. A golf club substantially as herein described with reference to the accompanying drawings.

Dated this 13th day of May, 1927.

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49, Chancery Lane, London.

[This Drawing is a reproduction of the Original on a reduced scale.]

